

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)



Date of mailing
(day/month/year) 08 JUNE 2005 (08.06.2005)

Applicant's or agent's file reference
PCT05-002

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2005/000747

International filing date (day/month/year)

15 MARCH 2005 (15.03.2005)

Priority date(day/month/year)

16 MARCH 2004 (16.03.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC7 A61K 31/353, A61P 35/00, A61P 39/06

Applicant

DPI SOLUTIONS, INC. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



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**WRITTEN OPINION OF THE
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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 14	YES
	Claims		NO
Inventive step (IS)	Claims	1 - 14	YES
	Claims		NO
Industrial applicability (IA)	Claims	1 - 14	YES
	Claims		NO

2. Citations and explanations :

The following documents are referred to in this report:

- D1: KR 2004-0006955 A (24.01.2004)
D2: Pharm. Dev. Technol. Vol.7(2). pp.249-255 (May 2002)
D3: J. Pharm. Sci. Vol.91(1), pp.111-116 (Jan. 2002)
D4: KR 1996-006910 A (22.03.1996)

1. Novelty and Inventive Step

Claims 1-14 of the present invention relate to a composition for stabilizing epigallocatechin gallate(EGCG) in water phase comprising EGCG, cationic polymer (chitosan, lysine, polyvinylpyrrolidone etc.), anionic polymer (polyethyleneoxide, polyethyleneglycol, cellulose, gelatin, etc.), antioxidant, and hydrophilic solvent; a preparation method thereof; and a cosmetic, pharmaceutical, and food composition containing the said composition comprising stabilized EGCG.

D1 discloses a complex of collagen-EGCG and a prosthetics containing the said complex.
D2 discloses that anhydrous glycerin-based Carbopol (acrylic acid cross-linked with polyalkenyl ether or divinyl glycol) gels are promising vehicles for EGCG since the stability data showed no degradation of EGCG had occurred.
D3 discloses that butylated hydroxytoluene in glycerin produced the greatest stability improvement for EGCG.
D4 discloses chitosan microspheres incorporating EGCG and a cosmetic composition comprising the said chitosan microspheres.

None of D1-D4 discloses the said composition for stabilizing EGCG and a preparation method thereof in claims 1-14 of the present invention.

In addition, there is no implication or suggestion in D1-D4 to lead those who skilled in the art to expect that cationic polymer, anionic polymer, and antioxidant can be used at the same time to increase the stability of EGCG in water phase.

Therefore, the novelty and inventive step of claims 1-14 can be acknowledged over D1-D4 [Article 33(2) and 33(3) PCT]. (Continued on the Supplemental Sheet.)

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of :

Box V.

2. Industrial Applicability

The subject-matter of claims 1-14 appears to be industrially applicable [Article 33(4) PCT].